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*Indian Standard*  
SPECIFICATION FOR  
GOLD LEAF  
( Second Revision )

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*Indian Standard*  
**SPECIFICATION FOR**  
**GOLD LEAF**  
*Second Revision*

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*Indian Standard*  
**SPECIFICATION FOR**  
**GOLD LEAF**  
*( Second Revision )*

**0. FOREWORD**

**0.1** This Indian Standard ( Second Revision ) was adopted by the Indian Standards Institution on 29 January 1982, after the draft finalized by the Precious Metals Sectional Committee had been approved by the Structural and Metals Division Council.

**0.2** This standard was first published in 1955 and subsequently revised in 1965. This standard covers the material used for edible purposes, as in AYURVEDIC and UNANI systems of medicine and as a coating on sweets, PAN and other eatables. This standard also covers gold leaf used for other commercial purposes besides paint industry, such as its use in temples and in leather industry. Accordingly, two grades have been specified in this specification. Grade 1 is intended to cover its use for edible purposes and Grade 2 for commercial purposes. Very high purity gold has been recommended for edible purposes in order to avoid possibilities of contamination due to harmful elements. Since gold leaf may be used for edible purposes, the maximum permissible impurity limits of harmful elements specially for arsenic, lead, cadmium and mercury have been specified in this revision.

**0.3** For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960\*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

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**1. SCOPE**

**1.1** This specification covers the requirements of two grades of gold leaf used for edible and commercial purposes.

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\*Rules for rounding off numerical values ( revised ).

## 2. PURITY

**2.1** The gold content of gold leaves shall be of minimum fineness as specified below:

	<i>Fineness</i>
Grade 1	999/1 000 fine
( For medicinal and edible purposes)	
The maximum permissible impurities for Grade 1 are as follows:	
Lead	2.5 ppm
Arsenic	1.1 ppm
Cadmium	0.8 ppm
Mercury	0.01 ppm
Grade 2	970/1 000 fine ( 23.3 carat )
( For commercial purposes )	

**2.1.1** The gold content shall be determined either by the method specified in IS:1418-1972\* or any other established instrumental/chemical method. In case of dispute the procedure in the latest edition of IS : 1418-1972\* for chemical analysis shall be the referee method.

**2.1.2** The Indian Standard for determination of lead, arsenic, cadmium and mercury is under preparation. Until this standard is published, the method for determination of these elements shall be as agreed to between the purchaser and supplier.

## 3. SUPPLY OF MATERIAL

**3.1** General requirements relating to the supply of material shall conform to IS : 1387-1967†.

## 4. REQUIREMENTS

**4.1 Workmanship** — Gold leaf shall be in the form of sheet free from creases and folds.

### 4.2 Weight

**4.2.1** For Grade 1 — Each pack ( see 5.3 ) shall weigh 15 g.

\*Method for assaying of gold in gold and gold alloys ( *first revision* ).

†General requirements for the supply of metallurgical materials ( *first revision* ).

**4.2.2 For Grade 2 —** Each pack ( *see 5.3* ) shall weigh either 10 g or 8 g depending on the size [ *see 4.3 (b)* ].

**4.2.3 Tolerance —** Tolerance on weights specified in **4.2.1** and **4.2.2** shall be  $\pm 0.15$  g.

**4.3 Shape and Size —** Unless otherwise specified, the gold leaf of Grade 1 and Grade 2 may be supplied in assortments of approximate shape and size as given below:

- a) Nearly round shape for Grade 1, and
- b)  $150 \times 175$  mm ( for 10 g weight ) and  $125 \times 150$  mm ( for 8 g weight ) for Grade 2.

## 5. PACKING

**5.1** Books shall be properly packed in a suitable container so as to prevent damage due to creasing or bending in transit.

**5.2** Gold leaf shall be supplied in either of the following two forms as specified by the purchaser:

- a) *Detachable (for Grade 1)* — In books with gold leaf loosely placed in between white tissue paper; or
- b) *Non-detachable (for Grade 2)* — In books with the gold leaf pressed on white tissue paper to prevent gold leaf becoming detached from paper due to draughts or air-currents.

**5.3** A pack shall contain 100 leaves in 10 books each having 10 leaves.

## 6. SAMPLING AND CRITERIA FOR CONFORMITY

**6.1 Lot —** In any consignment, minimum of ten packs shall constitute a lot.

**6.2** The number of packs to be sampled from each lot for the purposes of workmanship, dimensional and weight requirements and also for assay shall be as given in Table 1. These packs shall be selected at random preferably with the help of random number tables ( *see IS : 4905-1968\** ).

**6.3** All the packs selected as per col 2 of Table 1 shall be examined for workmanship, dimensional and weight requirements. There shall be no failure if the lot is to be accepted for these requirements.

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\*Methods for random sampling. ( Reaffirmed 1978 ).

TABLE 1 SCALE OF SAMPLING

( Clauses 6.2 and 6.3 )

NO. OF PACKS IN THE LOT	SAMPLE SIZE FOR WORKMANSHIP, DIMENSIONAL AND WEIGHT REQUIRE- MENTS	NO. OF DETERMI- NATIONS FOR ASSAY
(1)	(2)	(3)
10 to 25	8	3
26, 50	13	4
51 and above	20	5

**6.4** The number of determinations to be carried out for assay shall be as given in col 3 of Table 1. For this purpose at least 2 packs shall be drawn for each determination and 2 leaves from each pack shall be taken out. A composite sample of 500 mg (for Grade 1) and 250 mg (for Grade 2) shall be prepared out of the 4 gold leaves taken above. This process is to be repeated for each determination of assay. There shall be no failure in respect of assay if the lot is to be accepted for this characteristic.

## 7. MARKING

**7.1** Each pack shall be marked with the following information:

- a) \*The grade,
- b) The fineness of gold leaves,
- c) Net weight of one pack,
- d) Weight of the tissue papers,
- e) Actual weight of gold leaves,
- f) The approximate shape and size of the gold leaf, and
- g) Trade mark or name of the manufacturer.

**7.1.1** The material may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act, and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

\*In case of Grade 2 gold leaf, the marking shall include the words 'not to be used for edible purposes'.

# INTERNATIONAL SYSTEM OF UNITS (SI UNITS)

## Base Units

QUANTITY	UNIT	SYMBOL
Length	metre	m
Mass	kilogram	kg
Time	second	s
Electric current	ampere	A
Thermodynamic temperature	kelvin	K
Luminous intensity	candela	cd
Amount of substance	mole	mol

## Supplementary Units

QUANTITY	UNIT	SYMBOL
Plane angle	radian	rad
Solid angle	steradian	sr

## Derived Units

QUANTITY	UNIT	SYMBOL	DEFINITION
Force	newton	N	1 N = 1 kg.m/s <sup>2</sup>
Energy	joule	J	1 J = 1 N.m
Power	watt	W	1 W = 1 J/s
Flux	weber	Wb	1 Wb = 1 V.s
Flux density	tesla	T	1 T = 1 Wb/m <sup>2</sup>
Frequency	hertz	Hz	1 Hz = 1 c/s (s <sup>-1</sup> )
Electric conductance	siemens	S	1 S = 1 A/V
Electromotive force	volt	V	1 V = 1 W/A
Pressure, stress	pascal	Pa	1 Pa = 1 N/m <sup>2</sup>

## INDIAN STANDARDS INSTITUTION

Manak Bhavan, 9 Bahadur Shah Zafar Marg, NEW DELHI 110002

Telephones : 26 60 21, 27 01 31

Telegrams : Manaksantha

### Regional Offices:

Telephone

Western : Novelty Chambers, Grant Road

BOMBAY 400007 37 97 29

Eastern : 5 Chowinghee Approach

CALCUTTA 700072 27 50 90

Southern : C.I.T. Campus

MADRAS 600113 41 24 42

Northern : B69, Phase VII

S.A.S. NAGAR —

(MOHALI) 160051

### Branch Offices:

'Pushpak', Nurmohamed Shaikh Marg, Khanpur	AHMADABAD 380001	2 03 91
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